

WE CLAIM:

1. A method of image segmentation comprising the steps of:

5 partitioning at least part of an input image into a plurality of partitioned units;

determining segments for each of said plurality of partitioned units based on at least one pixel attribute of said input image; and

10 selectively combining said segments of said partitioned units to provide a segmented version of said input image.

15 2. A method according to Claim 1, wherein said step of selectively combining is effected by a shortest spanning tree technique.

3. A method according to Claim 2, wherein said step of selectively combining includes the steps of:

20 representing said segments for each of said plurality of partitioned units as nodes of a tree connected via links, each of said links having a weight based on said at least one pixel attribute;

finding a least weight link;

25 combining two nodes connected by said least weight link to form a merged node;

connecting said merged node to nodes adjacent said two nodes via new weighted links;

30 repeating said steps of finding, combining and connecting until a predetermined number of

nodes representing said segmented version of said input image remain in said tree.

4. A method according to Claim 3, wherein said step
5 of partitioning further includes:

generating connectivity information associated with said partitioned units.

5. A method according to Claim 4, wherein said nodes
10 of said tree are connected using said connectivity information.

6. A method according to Claim 1, wherein said partitioned units includes square blocks.

15 7. A method according to Claim 1, wherein said step of determining segments is effected by a shortest spanning tree technique.

20 8. A system for image segmentation comprising:

an image partition module;

a block segmentation module coupled to said image partition module; and

25 a segment combination module coupled to said block segmentation module;

wherein in use said image partition module partitions at least part of an input image into a plurality of partitioned units, said block segmentation module determines segments for each of said plurality of partitioned units based on at

least one pixel attribute of said input image and
said segment combination module selectively
combines said segments of said partitioned units
to provide a segmented version of said input
image.

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9. A system according to Claim 8, further comprising:
a feature extraction module coupled to said
block segmentation module;

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wherein in use said feature extraction module
determines said at least one pixel attribute of
said input image.

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10. A system according to Claim 8, wherein said
partitioned units includes square blocks.

11. A system according to Claim 8, wherein said block
segmentation module determines segments by a shortest
spanning tree technique.

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12. A system according to Claim 8, wherein said
segment combination module selectively combines said
segments by a shortest spanning tree technique.

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13. A system according to Claim 8, wherein said
segment combination module selectively combines said
segments by performing the steps of:

representing said segments for each of said
plurality of partitioned units as nodes of a tree

connected via links, each of said links having a weight based on said at least one pixel attribute;

finding a least weight link;

combining two nodes connected by said least eight link to form a merged node;

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connecting said merged node to nodes adjacent
said two nodes via new weighted links;

repeating said steps of finding, combining and connecting until a predetermined number of nodes representing said segmented version of said input image remain in said tree.

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14. A system according to Claim 8, wherein said image partition units further generates connectivity information associated with said partitioned units.

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15. A system according to Claim 14, wherein said nodes of said tree are connected using said connectivity information.

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